

**REMARKS**

The application has been reviewed in light of the Non-Final Office Action mailed December 30, 2005. In this Non-Final Office Action, the Examiner acknowledged Applicants' election without traverse filed December 16, 2005. However, Applicants contend that the Examiner mistakenly withdrew claims 16-18 from further consideration. Additionally, the Examiner retained claims 12, 35, and 67, which Applicants did not elect. Applicants respectfully request that the Examiner reconsider the withdrawal of claims 16-18 from further consideration, and retain claims 16-18. At the time of the Non-Final Office Action, claims 1-71 were pending in this application. Claims 1-15, 20-35, 45-62, 67, and 68 have been rejected.

**Claim Rejections 35 U.S.C. § 102(b)**

Claims 1-14, 20-35, 45-62, and 68 have been rejected under 35 U.S.C. 102(b) as being anticipated by LaFleur (5,433,270). Specifically, The Examiner states as follows in bold typeface:

**With respect to the embodiment of figures 2-7, either the outer coating (68, 90, 119, 162) alone or the outer coating and the secondary cylindrical core member (66, 88, 118, 158) constitute the "outer foam sleeve" as recited.**

**Either wiper portion (74, 106, 132) of embodiment of figures 2-4 and 7 or the nose 160 of Figure 6 of LaFleur constitutes the "nose" as recited.**

Applicants respectfully traverse this rejection as to claims 1-14, 20-35, 45-62, and 68.

As to amended claim 1, LaFleur does not disclose "a plug for separating fluids successively introduced into a wellbore comprising an inner mandrel and an outer compressible foam sleeve secured thereto." Rather, LaFleur discloses a "solid resilient foam material" with "good memory properties." The only indication of firmness is given with respect to the coatings

(68, 90, 119 and 162), which may be “self-skinning foam having a hardness of 60 to 70 durometer.” As one skilled in the art would appreciate, this is not compressible. Further, the coatings (68, 90, 119 and 162) of LaFleur have a thickness of about 0.075 inches. With such a small thickness, these “coatings” are too thin to be considered a “compressible foam sleeve.” Furthermore, there is no indication that the drillable foam of LaFleur is compressible. As The Examiner stated in the Office Action, “LaFleur teaches forming a cementing plug body of foam material so that it can be drilled out more effectively by PDC drill bits.” (Office Action, Page 4, Paragraph 2). Drillable foam and compressible foam are not the same thing. Additionally, LaFleur gives an indication that the density of the drillable foam may be around 8 to 10 pounds per cubic foot. While density is not necessarily linked to compressibility, this density is quite high. By comparison, packaging foam typically has a density up to about 1.5 pounds per cubic foot and automotive seat cushions typically have a density up to about 4.0 pounds per cubic foot.<sup>1</sup> Therefore LaFleur does not teach a compressible foam sleeve. Accordingly, amended independent claim 1, and corresponding dependent claims 2-14 which incorporate all of its limitations, are believed patentable over LaFleur.

As to amended independent claims 20 and 45, LaFleur does not disclose a compressible foam sleeve and the arguments above apply for analogous reasons. Therefore, independent claim 20, and corresponding dependent claims 21-35 which depend on claim 20 and thus incorporate all of its limitations, and independent claim 45, and corresponding dependent claims 46-62 and 68 which depend on claim 45 and thus incorporate all of its limitations, are believed patentable over LaFleur.

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<sup>1</sup> Polyurethane Foam Association website  
<http://www.pfa.org/ce/transparencies/Typical%20Density%20Ranges%20T4.jpg>

Accordingly, the Applicants respectfully request that the Examiner withdraw his rejection of these claims and allow them to issue.

**Claim Rejections 35 U.S.C. § 103(a) - Treece/Tessier in view of Cato/LaFleur**

Claims 1, 2, 5-13, 20-24, 32-34, 45-48, 67, and 68 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Treece (6,196,311) or Tessier et al. (6,951,246) (“Tessier”) in view of Cato (4,069,535) or LaFleur. Specifically, The Examiner states as follows in bold typeface:

**Treece or Tessier et al disclose the invention as claimed except for the use of a foam outer sleeve. LaFleur teaches forming a cementing plug body of foam material so that it can be drilled out more effectively by PDC drill bits (see column 1, lines 36-60; column 8, line 67 through column 9, line 14; and column 9, lines 28-40). Cato teaches forming a pipeline pig of a foam type material in order to provide an effective seal between the pig and pipeline and to prevent it from becoming stuck during its operation (see column 1, lines 9-20 and 59-61). It is noted that pipeline pigs are substantially equivalent to cementing pistons since they are both used for batching and separation of different types of petroleum liquids pumped down a conduit and for cleaning and scraping the walls of the conduit. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the outer sleeve of the cementing plugs of Treece or Tessier et al of foam material in view of the teaching of Cato or LaFleur for the advantages pointed out above.**

Applicants respectfully traverse this rejection as to claims 1, 2, 5-13, 20-24, 32-34, 45-48, 67, and 68.

As to claim 1, Treece/Tessier in view of Cato/LaFleur does not disclose “A plug for separating fluids successively introduced into a wellbore comprising an inner mandrel and an outer compressible foam sleeve secured thereto.” As indicated by The Examiner, Treece or Tessier do not disclose the use of a foam outer sleeve. Additionally, as indicated above, LaFleur does not disclose a compressible foam sleeve. This leaves only Cato to teach a compressible

sleeve. However, Applicants submit that The Examiner's alleged motivation in using features from Cato in a plug is speculative hindsight reconstruction. The conclusory reasoning provided in the Office Action falls short of the required evidence of a motivation to combine the prior art references. Pipeline pigs are not substantially equivalent to cementing pistons as asserted by The Examiner. A pig is used to clean a pipeline, while a plug is used to separate fluids in a wellbore. While pigs are occasionally used to separate petroleum products in a pipeline, this is not their main function. Pigs primarily remove impurities from a *pipeline*, such as wax, rust, scale, water, and other debris.<sup>2</sup> Plugs, on the other hand, are primarily used to separate different kinds of liquids, such as drilling fluid and cement in the *wellbore*.

Additionally the makeup of pigs is not suited to plugs. In fact, pigs are almost always made to be retrieved from the pipeline after use. There are even pigs that specialize in recovery of other pigs. Pigs are not drilled out of pipelines after use. Plugs, however, are frequently drillable (as evidenced by the drillable foam of LaFleur). Further, as one having ordinary skill in the art would appreciate, the operating environment of pipelines is different from that of wellbores. Moreover, none of the references teaches or suggests such a combination. Therefore, there is no motivation to combine the features of a drillable plug or any other plug with a pipeline pig. Accordingly, independent claim 1, and corresponding dependent claims 2,

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<sup>2</sup> Schlumberger's Oilfield Glossary defines pig as "A device with blades or brushes inserted in a pipeline for cleaning purposes" <http://www.glossary.oilfield.slb.com/> (emphasis added).

Shell's Pipeline Terminology defines pig as "A device placed inside a pipeline that is used to clean or scrape residues from the inner wall of the pipe." [http://www.shellpipeline.com/aboutpipelines\\_pipeterms.htm](http://www.shellpipeline.com/aboutpipelines_pipeterms.htm) (emphasis added).

Conoco Phillips' glossary defines pig as "A cylindrical device that is inserted into a pipeline to clean the pipeline wall or monitor the internal condition of the pipeline" [http://www.conocophillips.com/newsroom/other\\_resources/energyglossary/glossary\\_p.htm](http://www.conocophillips.com/newsroom/other_resources/energyglossary/glossary_p.htm) (emphasis added).

and 5-13 which incorporate all of the limitations of independent claim 1, are believed patentable over the combination of Treece or Tessier and Cato or LaFleur.

As to amended independent claims 20 and 45, LaFleur also does not disclose a compressible foam sleeve for analogous reasons stated above. Therefore, independent claim 20, and corresponding dependent claims 21-24 and 32-34 which depend on claim 20 and thus incorporate all of its limitations, and independent claim 45, and corresponding dependent claims 46-48, 67 and 68 which depend on claim 45 and thus incorporate all of its limitations, are believed patentable over the combination of Treece or Tessier and Cato or LaFleur.

Accordingly, the Applicants respectfully request that the Examiner withdraw his rejection of these claims and allow them to issue.

**Claim Rejections 35 U.S.C. § 103(a) - Freeman in view of Cato/LaFleur**

Claims 1-3, 5, 8-15, 19-24, 32-35, 45-49, 67, and 68 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman (4,836,279) in view of Cato or LaFleur. Specifically, The Examiner states as follows in bold typeface:

**Freeman discloses the invention as claimed except for the use of a foam outer sleeve. LaFleur teaches forming a cementing plug body of foam material so that it can be drilled out more effectively by PDC drill bits (see column 1, lines 36-60; column 8, line 67 through column 9, line 14; and column 9, lines 28040). Cato teaches forming a pipeline pig of a foam type material in order to provide an effective seal between the pig and pipeline and to prevent it from being stuck during its operation (see column 1, lines 9-20 and 59-61). It is noted that pipeline pigs are substantially equivalent to cementing pistons since they both are used for batching and separation of different types of petroleum liquids pumped down a conduit and for cleaning and scraping the walls of the conduit. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the outer sleeve of the cementing plugs of Freeman of a foam material in view of the teaching of Cato or LaFleur for the advantages pointed out above.**

Applicants respectfully traverse this rejection as to claims 1-3, 5, 8-15, 19-24, 32-35, 45-49, 67, and 68.

As to claim 1, Freeman in view of Cato/LaFleur does not disclose “A plug for separating fluids successively introduced into a wellbore comprising an inner mandrel and an outer compressible foam sleeve secured thereto.” As indicated by The Examiner, Freeman does not disclose the use of a foam outer sleeve. LaFleur does not disclose a compressible foam sleeve, and there is no suggestion or motivation to combine Freeman with Cato. As stated above, The Examiner’s alleged motivation in using features from Cato in a plug is speculative hindsight reconstruction. The conclusory reasoning provided in the Office Action falls short of the required evidence of a motivation to combine the prior art references. As explained above, pipeline pigs are not substantially equivalent to cementing pistons as asserted by The Examiner. None of the references teaches or suggests such a combination. Therefore, there is no motivation to combine the features of a drillable plug or any other plug with a pipeline pig. Accordingly, independent claim 1, and corresponding dependent claims 2-3, 5, 8-15 and 19 which incorporate all of the limitations of independent claim 1, are believed patentable over the combination of Freeman and Cato and/or LaFleur.

As to amended independent claims 20 and 45, LaFleur also does not disclose a compressible foam sleeve for analogous reasons stated above. Therefore, independent claim 20, and corresponding dependent claims 21-24, and 32-35 which depend on claim 20 and thus incorporate all of its limitations, and independent claim 45, and corresponding dependent claims 46-49 and 67 68 which depend on claim 45 and thus incorporate all of its limitations, are believed patentable over the combination of Freeman and Cato and/or LaFleur.

Accordingly, the Applicants respectfully request that The Examiner withdraw his rejection of these claims and allow them to issue.

**SUMMARY**

In light of the above amendments and remarks, Applicants respectfully submit that the application is now in condition for allowance and earnestly solicit early notice of the same. Should the Examiner have any questions, comments or suggestions in furtherance of the prosecution of this application, the Examiner is invited to contact the attorney of record by telephone, facsimile or electronic mail, as indicated below.

Applicants believe that there are no fees due in association with the filing of this Response. However, should the Commissioner deem that any fees are due, including any fees for any extensions of time, Applicants respectfully request that the Commissioner accept this as a Petition therefore, and direct that any fees be debited from Baker Botts L.L.P., Deposit Account No. 02-0383, (*formerly Baker & Botts, L.L.P.*) Order Number 063718.0354.

Respectfully submitted,

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TITLE:	"MOLDED FOAM PLUGS, PLUG SYSTEMS AND METHODS OF SAME"

INCLUDED IN THIS MAILING FOR THE ABOVE-REFERENCED PATENT APPLICATION ARE:

1. Response Under 37 C.F.R. §1.111 to Non-Final Office Action, Mailed December 30, 2005; and
2. Return postcard to acknowledge receipt of this item.

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